

What is claimed is:

1. A map divided into a plurality of areas, with each area comprising at least one embedded digital watermark including location information for the respective map area.
2. The map according to claim 1, wherein the location information comprises a center location for the respective map area.
3. The map according to claim 1, wherein the respective map area comprises a boundary and the location information comprises coordinates for the boundary.
4. The map according to claim 1, wherein the respective map area comprises four corners and the location information comprises coordinates for each of the four corners.
5. The map according to claim 1, wherein the at least one embedded digital watermark includes a coverage area of the map.
6. The map according to claim 5, wherein the at least one embedded digital watermark includes an orientation signal.
7. An apparatus to read digital watermarks embedded within a map, the map being divided into a plurality of areas, with each area comprising at least one embedded digital watermark including location information for the respective map area, said apparatus comprising:
 - a global positioning system receiver to determine a location of said apparatus;
 - an input device to capture an image of at least a portion of the respective map area;
 - memory including executable software instructions stored therein, the instructions to extract the location information from the at least one embedded digital watermark from

the captured image of at least a portion of the respective map area, and to correlate the location of the apparatus with the extracted location information;

electronic processing circuitry to execute the software instructions; and

an output device to indicate the correlation of the apparatus location and the captured watermark location information.

8. The apparatus according to claim 7, wherein said apparatus is a handheld apparatus.

9. The apparatus according to claim 7, wherein the output device provides one of an LED indication, arrow indication, audio indication, grid indication, and visual display.

10. A method of making a map comprising an improvement of:
dividing a map into a plurality of areas;
steganographically encoding plural-bit location data within each of the plurality of areas, wherein the location data is unique per each of the plurality of areas.

11. A method of navigating with a map embedded with digital watermarks comprising the steps of:

extracting a digital watermark from the map, the digital watermark including location information which uniquely identifies the respective map watermark extraction area;

comparing the location information to a physical location; and

providing feedback to correlate the location information and the physical location.

12. A method of correlating a physical location to a map location, the map being divided into a plurality of areas, with each area comprising at least one embedded digital watermark including location information for the respective area, the method comprising the steps of:

extracting the location information from the watermark at the map location;
comparing the extracted location information to global positioning system (GPS) received coordinates of the physical location;
providing feedback based on the comparison of the physical location and the map location.

13. The method according to claim 12, wherein the location information comprises an index, and said method further comprises the step indexing a database with the index to identify location information.

14. A sign having plural bit data encoded thereon in the form of a digital watermark, the data comprising a unique identifier.

15. The sign according to claim 14, wherein in the unique identifier identifies the location of the sign.

16. The sign according to claim 14, wherein the unique identifier conveys a message.

17. The sign according to claim 16, wherein the message is one of a speed limit, directions, location of an establishment, and seating information.

18. The sign according to claim 14, wherein the unique identifier is an index for a database, the database comprising data records.

19. The sign according to claim 18, wherein a data record comprises at least one of a speed limit, directions, location of an establishment, Java applets, lodging vacancy, menu, hours of operation, tourist information, HTML code, URL page, IP address, and seating information.

20. A method comprising the steps of:
capturing an image of a sign;
extracting a digital watermark from the captured image, the watermark including plural-bit data; and
outputting a response in accordance with the plural-bit data.

21. The method according to claim 20, further comprising the step of interrogating a database with the plural-bit data to locate a corresponding web page address.

22. The method according to claim 21, wherein the response comprises displaying the web page associated with the web page address.

23. The method according to claim 20, further comprising the step of accessing a file associated with the plural-bit data, the file including one of audio, video, and text data.

24. An apparatus to read digital watermarks embedded within a map, the map being divided into a plurality of areas, with each area comprising at least one embedded digital watermark including location information for the respective map area, said apparatus comprising:

a global positioning system receiving means for determining a location of said apparatus;

input means for inputting an image of at least a portion of the respective map area;

memory means for maintaining executable software instructions stored therein, the instructions to extract the location information from the at least one embedded digital

watermark from the captured image of at least a portion of the respective map area, and to correlate the location of the apparatus with the extracted location information; processing means for processing the software instructions; and output means for outputting a correlation of the apparatus location and the watermark location information.

25. An apparatus to read digital watermarks embedded within a map, the digital watermarks including location information for respective map locations, said apparatus comprising:

a global positioning system receiving means for determining a physical location of said apparatus;

input means for inputting data corresponding to at least a portion of the respective map area;

processing means for extracting the location information from the input data and for correlating the physical location with the extracted location information; and

output means for outputting an indication of the relative correlation between the apparatus location and the watermark location information.

26. A method comprising the steps of:

accessing a database comprising information;

retrieving a subset of the database information;

storing the retrieved subset of database information in a handheld computing device, the handheld device including an input device;

capturing a portion of a digitally watermarked map by the input device, the portion including at least one watermark comprising map location information;

in the handheld computing device, determining which of the retrieved subset database information corresponds to the map location information; and

providing the corresponding retrieved subset database information as feedback.

27. The method according to claim 26, further comprising the step of wirelessly accessing the database.

28. The method of claim 26, wherein the database information includes at least one of road directions, restaurant information, store or restaurant promotions, coupons, tourist information, historical information, zoo information, amusement park information, rest-stop information, road conditions, road work information, and detour information.

29. The method of claim 26, wherein the feedback comprises at least one of visual feedback, audible feedback, text feedback, graphical user interface feedback, laser pointer illumination and a printed document.

30. A method comprising the steps of:
inputting a map location to a computing device;
determining a current location;
in the computing device, determining a relationship between the input map location and the current location; and
providing directions from the current location to the input map location.

31. The method of claim 30, wherein the map includes a plurality of digital watermarks, and said inputting step comprises the steps of reading at least one digital watermark, the watermark comprising the map location.

32. The method of claim 31, wherein said determining a current location step comprises a step of receiving GPS signals to determine the current location.